UNITED NATIONS

World Chronicle

PROGRAMME: No. 633, recorded 29 May 1996

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OUTER SPACE APPLICATIONS

Abigun Ade ABIODUN, Chief of the Space Applications Section of the United Nations Office for Outer Space Affairs, discusses the importance of space technology in the economic and social development of third world countries, especially in Africa. Mr. Abiodun believes that, in spite of its proven benefits, space technology is far from being effectively utilized by most African countries to address national development issues. The Office for Outer Space Affairs has developed a proposal for the establishment of a satellite-based Cooperative Information Network, called COPIN, linking scientists, educators, professionals and decision-makers. Its aim, Mr. Abiodun says, is to use space technology to improve health care and education, as well as to protect Africa's natural resources and environment.

WORLD CHRONICLE is produced by the Media Division, Department of Public Information, United Nations, New York, NY 10017, U.S.A.

Duration:	28:00"
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ANNOUNCER: From United Nations Headquarters in New York, this is **World Chronicle**, an unedited interview programme about major global issues. Here now to introduce our guest is the host of today's **World Chronicle**.

IAN WILLIAMS: Sitting in for Michael Littlejohns, I'm Ian Williams, and this is **World Chronicle**.

Over the last few decades, human activities in outer space, and their impact on our lives, have intensified. Satellites orbiting in outer space speed world-wide communications and provide us with information essential to our safety and to economic and social development. But is this advanced technology available to all countries on all continents? And how can a continent like Africa use it to further sustainable development?

Our guest today is an expert on space technology. He is Adigun Ade Abiodun, Chief of the Space Applications Section in the United Nations Office for Outer Space Affairs. Joining me to talk with Mr. Abiodun are Segun Adeyemi of the News Agency of Nigeria and Anne Penketh of AFP.

Mr. Abiodun, many of our politicians in the United States really feel that the whole United Nations should be in orbit in outer space. Could you explain precisely what the Committee on Outer Space actually does, in a general sense, before we move on to Africa?

ABIODUN: Yes, I can. The Committee on the Peaceful Uses of Outer Space, as you are well aware, meets once a year in June. And this particular Committee is assisted by two subcommittees – the Scientific and Technical Subcommittee, which meets in February every year, and the Legal Subcommittee, which meets immediately thereafter. And their recommendations are subsequently transmitted to the main Committee in June, which then concludes its deliberations and passes its own recommendations to the General Assembly for endorsement every year.

The Committee has been looking at many, many things over the years. As you recollect, the Committee was established in 1958 as an ad hoc committee and became a full committee in 1959. Today it has 61 Member States. Now, the Committee has addressed such issues as who owns outer space –

WILLIAMS: Who owns outer space?

ABIODUN: That's right. Who owns the resources –

WILLIAMS: What did it decide?

ABIODUN: It came up with a long series of lists, of articles of agreement, in 1966, known as the [United Nations Outer] Space Treaty. And this particular Treaty ensures that outer space belongs to all of us; it's not the purview of anybody or any country, and the resources therein belong to all of us. Similarly, through this particular ***Committee, the

General Assembly passed what we call the Liability Convention*, which means that if your country launches a space object and that space object falls down on another country, your country, the launching State, will take responsibility for the damages. As an example, the Sky Lab of the United States fell over Australia, and Cosmos 954 of the former Soviet Union, with nuclear power sources, fell over Canada. So all these countries who are launch States have to take responsibility for cleaning up all this debris and the contamination.

WILLIAMS: So we're not just talking about UFOs here, we're talking about very serious practical matters.

ABIODUN: Very serious problems. Then every day there are a number of satellites what we call monitoring the resources of the earth, and things that are actually taking place on the earth – the vegetation, the water, the pollution. And the sensing States – that is, the ones that are launching the satellites – have responsibility to the State they are sensing to make this type of information available to them so that they can use such data for their own social and economic development. So the UN has been looking at some of these things. And at the present moment we are looking at what we call space debris. Just if you look at some of the Star Trek movies you find a lot of space debris being shown in these things. Now, this is real in life, because there are a lot of rocks in outer space, and at the same time human activities in outer space are creating space debris. Some of these space vehicles are disintegrating over time, and the question is what dangers do they pose for other space vehicles that can be there. Then there is the issue of the ozone layer: How much is the ozone creating an environmental problem for us on the surface of the earth? So, these are some of the issues that the UN is grappling with. Not to mention also the issue of is it right or wrong to have nuclear power sources in outer space, and if there should be a failure of such power sources, what would be the ramifications for those who might suffer the consequences on the surface of the earth?

So the UN has been very, very effective in addressing these issues. It started with the first UN conference in 1968, and the second conference in 1982, and there is a plan now on the move to organize the third conference, most likely before the year 2000.

ADEYEMI: In a field where you talk about satellite remote sensing and geopositioning systems, which sound like terms from science fiction, I'm very interested in what level of interest you've been able to generate among the African countries. I'm asking because this is a continent where there are perhaps more pressing issues, like those of peace, development, and related issues. And people will be asking: Why don't we solve the

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* Convention on International Liability for Damage Caused by Space Objects.

problems on the ground first, rather than start talking about outer space? So I'm interested in the level of interest you've been able to generate among African countries.

ABIODUN: All right. Before I come to that, let me address one of the points you've made. You spoke about peace. Now, you can use satellite technology to maintain peace on the surface of the earth by ensuring that all those agreements you arrived at are not contravened and are being adhered to. So in this case you might want to go to examples such as the SALT treaties, SALT I and SALT II, between the United States and the former Soviet Union. And in the same way –

WILLIAMS: Of the Strategic Arms Limitation Treaties, regulating how many missiles –

ABIODUN: Exactly. So you use satellite technology for these things. And therefore if the parties that are in conflict should sit down with an arbitrator and agree to certain rules of engagement, then you can use satellite technology to monitor that these agreements are totally adhered to. So that, even in the area of peace in Africa, satellite technology can come into play. But now, when you talk in terms of poverty, food security, then satellite technology also comes into great play. Now, a lot of people – for example, in the case of Rwanda, where you had a big crisis and a massacre and people are moving, you need a lot of communication facilities to keep order and to seek information – to seek food, to prepare for shelter, to invite materials to come in. Now, unless you're able to put adequate communication facilities on the ground to request this type of information, you are not going to be able to provide that type of support and assistance. So satellite communication is the best way to go in such a case. We are talking about rural development; we are talking about the extension services in our universities to communicate to the farmers. If they are going to communicate to the farmer, they want to be able to tell the farmers when is it going to rain, when is it not going to rain, what is the quality of your soil. A remote sensing satellite will provide you with the information on the quality of your soil. A meterological satellite will provide you with information as to when it's going to rain, how much rain you are going to have. With this type of information, you can do adequate plannin_e to do adequate agricultural practices on your land.

And when you think in terms of natural disasters, not manmade disasters like Rwanda, again, you can have a satellite technology capability. So, alert the people, there is a typhoon coming, there is a volcanic eruption going to take place. Everybody should dispatch. Now, the best way to do this is through satellite communication. It's not that you want them to talk on the phone, but you want to alert them, you want to provide them with information. And our office is doing some of these things.

Then around Africa you have areas that are extremely rich in fishery resources. Satellite technology can allow you to monitor these zones and communicate that information to a well-equipped fisherman. Unfortunately, African fishermen are not well equipped to take advantage of this technology.

ADEYEMI: So how much of this usage of the application of outer space is known within Africa itself? I mean, how much have you been able to communicate it to them? Regarding what, you know?

ABIODUN: You have to differentiate between communicating, passing the information down to the decision-makers, and the decision-makers themselves accepting the information and making a judicious use of it. Many African leaders are fully aware of the role of information. Many of them have information for their defence industry. Now, the information that's not available is for civilian use. In other words, how you can have telecommunication facilities. You go to many African countries, you find a lot of cellular phones that are available there, but you do not have a public telephone that the average person can use. Therefore, what I'm trying to say is that the average country in Africa is fully conscious of the importance of telecommunications. Making it a priority issue to make it available for everybody else is another issue. On the other hand, what are we doing? We are doing a number of things. And we are not alone. FAO is doing a lot –

WILLIAMS: That's the Food and Agriculture Organization.

ABIODUN: The Food and Agriculture Organization. The World Meterological Organization is doing its own part in the area of satellite meteorology. And UNESCO, the United Nations Economic and Social Council, in Paris is equally helping in data remote sensing, particularly dealing with geological and mineral applications. So I'll just give you that as up front. But in the case of our own office, our mandate is to synthesize African countries, not only African countries, the total global community, to the understanding of this technology. After you understand it and appreciate it, then make use of it. But, to make use of it, you have to develop the human resources necessary. And what we are doing right now, in addition to all these short-term training courses we are organizing over the years, we received a mandate from the General Assembly in 1990 to establish centres for space science and technology education globally, on a regional basis. And we started with Asia and the Pacific, and we established a centre there in India on November 1 last year. And we have invited Morocco to establish a similar centre for Francophone African countries, and we have invited Nigeria to establish a similar centre for Anglophone African countries. So at the present moment the two countries are developing what I call the necessary legal tools of agreement to be entered into between these countries.

PENKETH: Because presumably it's – cooperation between different countries is required, you know, when you're talking about population movements and weather patterns and things like that, for an entire region.

ABIODUN: This is correct. And one of the problems also is that even when you are going to get the cooperation, you may not have the tools to exchange information. And what we are doing also in addition to the centres is that we organized a conference in Dakar in 1993, and at the conclusion of that particular conference the participants implored us to please bridge the communication gap between and among African professionals, scientists, educators and decision-makers. And so at the present moment, with the support of a number of – 10 European countries, and the European Space Agency, we are proceeding to establish a programme known as COPIN, that is the Cooperative Information Network, among African countries, so that they can actually exchange information in the area of medicine, in the area of education, in the area of agriculture, and also scientists can do library research not only locally, but globally.

WILLIAMS: But one of the problems that you mentioned earlier, you were talking about this being available to the Governments and to the elites, and you said cellular phones are available in Africa.

ABIODUN: Right.

WILLIAMS: But I suspect that the average African farmer doesn't have a cellular phone and doesn't have access to a satellite tracking station to feed this information.

ABIODUN: This is true.

WILLIAMS: So, I mean, doesn't this reinforce the problem that you have when elites have access to this technology and the mass of people on the African continent are cut off from the benefits of this? Unless perhaps the United Nations can assist in broadening the spread of information and technology.

ABIODUN: As I've just answered, yes, we are trying to do that, but the responsibility of realizing that for you to develop in a society you have to share information, and unless people are fully informed, they cannot appreciate their own contribution in the development process.... So we're doing this. And through this COPIN programme, which is really to be managed by the professionals and the universities, we hope that the opportunity will be created to enable what I call mass participation in this effort.

Another thing we are doing, in addition to talking to the educators and professionals, we are trying to get a lot of decision-makers to recognize the importance of inclusion by bringing everybody into the picture. And this is one of the focus points in the conference we are going to organize in South Africa.

WILLIAMS: This is **World Chronicle**. Our guest is Adigun Ade Abiodun, Chief of the Space Applications Section in the United Nations Office for Outer Space Affairs.

ADEYEMI: You were talking about information sharing, particularly among professionals and scientists, which is very important. But a major source of these means is through the global communication system, the Internet, which people could use to share information and get to know what's going on in the world. Africa has more or less been left behind in this area. I mean, if you look at how widely this is being used, it's very little in Africa. Are you – I mean, is this of interest to you? The use of Internet in sharing information among scientists and professionals?

ABIODUN: Yes, it is of major interest to me personally. I have access in my office to the global information highway, as you call it, or the Worldwide Web, or the Internet, and I can reach anybody anywhere that has the same access to the Internet. Now, when you are talking about Internet, you are talking about three facilities: You need a computer, you need a functional telephone system, and you need a functional power supply. Now, this is not available in most of the African countries. Most African countries have the computers – not all of them – but they have access to computers, but a computer that is standing alone is no different from an individual standing on an island, who is isolated, who is not able to share the information in its memory, nor can it access information from any other source. So until African countries – that are spending over $2 billion a year to import telecommunications equipment – until they are able to recognize the importance of information sharing and have that information play a significant role in the development process – nobody can do much about this. This has to be an internal reexamination with a lot of vision.

For example, today, as you and I are sitting in this room, if we go to a computer, you can access information about any African country. But that information has been generated most of the time outside Africa. And the African himself sitting down in Lagos or Nairobi or Harare or Johannesburg – I think in Johannesburg people can access it, but in most of the other places they can't, because they do not have what I've been telling you, they do not have the viable telephone system and they do not have a viable electric power supply. And these are major infrastructural needs in any development. And unless you can have these, it's not going to happen.

PENKETH: South Africa is actually going to be hosting your next conference later this year.

ABIODUN: Yes.

PENKETH: How do you hope to move the process forward at that time?

ABIODUN: Now, first and foremost, to move the process forward we're trying to alert all the African countries about the need for this conference and the urgency of this conference. We're also inviting all our partners who have been working with us and cooperating with us over the years in what we are doing to support us, to come and demonstrate what this technology can do, so that we will not only be talking to the African leaders, but they can see in a demonstrative manner what is going to happen. So when we bring the African leaders together what we intend to do then is to try and be specific, identify the needs in Africa. We cannot sit down and make a catalogue of the needs in every country, but the fundamental needs in Africa, and especially those needs that can be addressed with the assistance and support of space technology – this is what we are trying to do.

PENKETH: Why only 61 members? Because the UN has 185.

ABIODUN: Now, unfortunately, I'm not a delegate, so I don't think I can answer that question for you. But I don't think every member, every country in the world, every committee of the UN is always a committee of the whole. On the other hand, when the Committee is doing certain things that are of importance through all – everything the Committee does every day, every time, it's of importance to Member States, but from time to time the Committee allows Member States to come in as observers. So you do not really have to be a full Committee member to participate in the activities of the Committee. The only thing is that you do not participate in the decision-making of the Committee. But every Member State is given an opportunity to look at the issues.

WILLIAMS: One of the issues which – if I remember rightly – the Committee dealt with was the issue of geosynchronous satellite slots. There are some satellites which are above the same spot on the earth all of the time, but there's a limited number of places, mostly above the equator. Which, of course, Africa is mostly inside the equator. So is there any sort of commercial and political rivalry? Because these are highly prized places, over the skies of Africa. Have we got some sort of Star Wars future scenario as people battle for the right to mount a satellite above Africa on the equator?

ABIODUN: No, I don't think over Africa you have any major rivalry, because most of the countries that have the capability to launch satellites and place them on stationary orbit over the equator in Africa are mostly the European countries. Basically the European countries are working collaboratively through the European Space Agency, and they have a very limited number of satellites in this category. You have the meteorological satellites and then you have the communications satellites. And these are not as many as the ones in the Pacific, in the Asia region, or – and also between the United States and the Asian

countries. So the African region, the competition there is not that great at the present moment. There is still plenty –

WILLIAMS: At the present moment.

ABIODUN: But all of them have been divided to allow – in case country A or country Y intends to launch a satellite in future, it will have its own slot and its own position to use. And just like you have a piece of property on the surface of the earth and you are not ready to use it, you can lease it out. So any country can lease its spot out to another country that is ready to use it.

ADEYEMI: There is also the fear, particularly in developing countries, that space might become the next battleground for technologically advanced countries, in terms of an arms race. I know the conference on disarmament should be handling the issue of preventing an arms race in space. But, you know, it should also be of interest to your office to know how to prevent – what kind of answer can you give, that outer space should not become the next battleground for the technologically advanced? Because this might discourage developing countries, particularly in Africa, from showing much interest in this area.

ABIODUN: Now, I don't know where you got that information from, but from what we know in our office, to begin with, the Committee of the UN only deals with peaceful uses of outer space, not militarization of outer space. Now, the Committee on Disarmament deals with disarmament issues. Secondly, if you look at what is going on right now and compare this with what used to happen in the past, you go back to 1957, October 4, when the Soviet Union launched Sputnik 1, and the subsequent activities in the United States and the rivalry that became part and parcel of the space exploration effort at that time, then you can speak in terms of what you are saying now. There was competition, there was fear of domination, there was military, there was Star Wars and all of that. But with the fall of the Berlin Wall, with the dissipation of the cold war, attention is now being focused on peaceful exploration, on collaboration. And that is why you have now Americans with the space shuttle going to the Mir space station to work together, to see how we can collaborate in a commercial venture; and that is why you have all the Europeans uniting together under the European Space Agency, to see what they can do collaboratively to explore outer space for economic purposes and so on; that is why you have the Asian countries meeting in 1994 in Beijing to establish what they call a space applications programme to see how they can invest in this.

And therefore, at the present moment, the developing countries are not being discouraged in the area of space technology. If you look at Asia and Latin America as examples, most of the Asian countries today are planning to launch or have launched

communications satellites – Korea, Malaysia, Thailand, China, India, Pakistan. All of them have capabilities in space. And the same goes for Brazil and Mexico. So that's a lot of active participation, and if the intention is to discourage, no, that is not taking place. There's a lot of encouragement. And Egypt and South Africa also have the same vision at the present moment.

PENKETH: But many of the Asian countries that you mentioned are in fact newly rich countries, and the African countries, many are impoverished. So what about funding for, for example, satellite access?

ABIODUN: Now, at the present moment most of the African countries gain access to satellite communication, for example, through INTELSAT. Okay. They can obtain data of their geographical location or their resources on their land by using the satellites launched by France, Sweden and Belgium called SPOT, or the American satellite called Landsat. They can also obtain information from the European Space Agency satellite called ERS and the Canadian satellite called RADARSAT, or the Japanese satellite called JERS-1. So the capability is there. And then the information about weather is free. It's just a matter of having the equipment to access these satellites. So the ability of the Africans to access information is limited by plans, not because everything is expensive – yes, cost is a factor – but you can moderate your costs by looking for the cheapest and most effective way of accomplishing the same thing using the same concept and the same technology.

ADEYEMI: Talking about the conference scheduled for later in the year in South Africa, at a time when the UN is very broke, how do you plan to bankroll the conference?

ABIODUN: Now, we are not coming to the UN to exhaust the little pennies that are left. So at the present moment, thank God we have a lot of support for this particular conference. We have support also coming from the Government of South Africa, through the Government of South Africa, providing room and board for a number of the participants; then we have the financial support from the European Space Agency; and at the present moment we are globally campaigning for support, particularly those companies that are active in Africa and are doing some communication work. So in this way we believe we will be able to get initial support. And also we are looking at in-house, some of our sister organizations, UNDP and so on and so forth, to seek support.

WILLIAMS: Very briefly, in two words, what do you expect Africa will get out of this conference?

ABIODUN: Now, by the time this conference is over, I believe Africa will be –

WILLIAMS: Two words.

ABIODUN: – I hope Africa will be able to look at itself critically, look at the future, and see the role it should play in order to maximize its own effort in taking advantage of this technology.

WILLIAMS: Right. Thank you, Mr. Abiodun, that's all that we have time for. Thank you for being with us on this edition of **World Chronicle**.

Our guest has been Adigun Ade Abiodun, Chief of the Space Applications Section in the United Nations Office for Outer Space Affairs. He was interviewed by Segun Adeyemi of the News Agency of Nigeria and Anne Penketh of AFP. I'm Ian Williams. Thank you for joining us. We invite you to be with us for the next edition of **World Chronicle**.

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